

Patent Application
Attorney Docket No. 10010314-1
(AGIL01-00148)

In the Claims:

This listing of claims will replace all prior versions, and listing, of claims in the application:

1 1. (Currently Amended) A digital image sensor, comprising:
2 a first two-color photo-detector having a first photo-detector element capable
3 of absorbing light within only a first range of wavelengths and a second photo-detector
4 element capable of absorbing light within only a second range of wavelengths, said first
5 photo-detector element being in an elevated relation with said second photo-detector element,
6 said first photo-detector element being electrically isolated from said second photo-detector
7 element; and
8 a second two-color photo-detector having a third photo-detector element
9 capable of absorbing light within only a third range of wavelengths and a fourth photo-
10 detector element capable of absorbing light within only a fourth range of wavelengths, said
11 first, second, third and fourth range of wavelengths each being different from the other, said
12 third photo-detector element being in an elevated relation with said fourth photo-detector
13 element, said third photo-detector element being electrically isolated from said fourth photo-
14 detector element.

1 2. (Original) The sensor of Claim 1, further comprising:
2 a substrate, said second photo-detector element being formed within said
3 substrate.

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1 3. (Original) The sensor of Claim 2, further comprising:
2 a dielectric layer between said first photo-detector element and said second
3 photo-detector element, said dielectric layer electrically isolating said first photo-detector
4 element from said second photo-detector element.

1 4. (Original) The sensor of Claim 1, wherein said first photo-detector
2 element is formed of amorphous silicon having a thickness selected to absorb light within
3 said first range of wavelengths and pass light within said second range of wavelengths, said
4 second photo-detector detecting light within said second range of wavelengths passed by said
5 first photo-detector element.

1 5. (Original) The sensor of Claim 1, wherein said first and second photo-
2 detector elements are photodiodes.

1 6. (Original) The sensor of Claim 5, wherein said photodiodes are PIN
2 photodiodes.

1 7. (Previously Presented) The sensor of Claim 1, further comprising:
2 a color filter in an elevated relation with said first photo-detector element, said
3 color filter absorbing light within another range of wavelengths and passing light within said
4 first and second ranges of wavelengths.

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1 8. (Original) The sensor of Claim 7, further comprising:
2 a transparent metal conductor layer between said color filter and said first
3 photo-detector element.

1 9. (Original) The sensor of Claim 1, further comprising:
2 circuitry for driving said first photo-detector element and said second photo-
3 detector element, said first photo-detector element being in an elevated relation with said
4 circuitry.

1 10-12. (Canceled)

1 13. (Original) The sensor of Claim 12, wherein said first photo-detector
2 element produces a first color value, said second photo-detector element produces a second
3 color value, said third photo-detector element produces a third color value and said fourth
4 photo-detector element produces a fourth color value, and further comprising:
5 a third two-color photo-detector having a fifth photo-detector element in an
6 elevated relation with a sixth photo-detector element, said fifth photo-detector element being
7 electrically isolated from said sixth photo-detector element, said fifth photo-detector element
8 being capable of absorbing light within said first range of wavelengths and producing a fifth
9 color value, said sixth photo-detector element being capable of absorbing light within said
10 second range of wavelengths and producing a sixth color value; and
11 a fourth two-color photo-detector having a seventh photo-detector element in
12 an elevated relation with an eighth photo-detector element, said seventh photo-detector
13 element being electrically isolated from said eighth photo-detector element, said seventh
14 photo-detector element being capable of absorbing light within said first range of

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15 wavelengths and producing a seventh color value, said eighth photo-detector element being
16 capable of absorbing light within said second range of wavelengths and producing an eighth
17 color value.

1 14. (Currently Amended) A digital image sensor, comprising:
2 a first two-color photo-detector having a first photo-detector element capable
3 of absorbing light within only a first range of wavelengths and a second photo-detector
4 element capable of absorbing light within only a second range of wavelengths, said first
5 photo-detector element being in an elevated relation with said second photo-detector element;
6 a first dielectric layer between said first photo-detector element and said
7 second photo-detector element;
8 a second two-color photo-detector having a third photo-detector element
9 capable of absorbing light within only a third range of wavelengths and a fourth photo-
10 detector element capable of absorbing light within only a fourth range of wavelengths, said
11 first, second, third and fourth range of wavelengths each being different from the other, said
12 third photo-detector element being in an elevated relation with said fourth photo-detector
13 element; and
14 a second dielectric layer between said third photo-detector element and said
15 fourth photo-detector element.

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1 15. (Original) The sensor of Claim 14, further comprising:

2 a substrate, said second photo-detector element being formed within said substrate.

1 16. (Original) The sensor of Claim 14, wherein said first photo-detector
2 element is formed of amorphous silicon having a thickness selected to absorb light within
3 said first range of wavelengths, said second photo-detector detecting light within said second
4 range of wavelengths passed by said first photo-detector element.

1 17. (Previously Presented) The sensor of Claim 14, further comprising:
2 a color filter in an elevated relation with said first photo-detector element, said
3 color filter absorbing light within another range of wavelengths and passing light within said
4 first and second ranges of wavelengths.

1 18. (Original) The sensor of Claim 17, further comprising:
2 a transparent metal conductor layer between said color filter and said first
3 photo-detector element.

1 19. (Original) The sensor of Claim 14, further comprising:
2 circuitry for driving said first photo-detector element and said second photo-
3 detector element, said first photo-detector element being in an elevated relation with said
4 circuitry.

1 20-26. (Canceled).

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1 27. (Previously Presented) The sensor of Claim 1, wherein said first photo-
2 detector element is formed of amorphous silicon having a first thickness selected to absorb
3 light within said first range of wavelengths and said third photo-detector element is formed of
4 amorphous silicon having a second thickness selected to absorb light within said third range
5 of wavelengths.

1 28. (Previously Presented) The sensor of Claim 14, wherein said first
2 photo-detector element is formed of amorphous silicon having a first thickness selected to
3 absorb light within said first range of wavelengths and said third photo-detector element is
4 formed of amorphous silicon having a second thickness selected to absorb light within said
5 third range of wavelengths.